Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

IN THE CLAIMS:

1. (Currently Amended) A process of recovering ~~one or more deoxy sugars~~ fucose from a solution ~~derived from~~ of a hydrolyzate of hemicellulose-containing biomass comprising deoxysugars and other monosaccharides, characterized by

subjecting said solution to ~~one or more of~~ a process comprising the following steps ~~(1), (2) and (3)~~:

(1) ~~at least one chromatographic fractionation using a column packing material selected from strongly acid cation exchange resins,~~

~~(2)~~ at least one chromatographic fractionation using a column packing material selected from weakly acid cation exchange resins and weakly basic anion exchange resins, and

(~~3~~2) at least one chromatographic fractionation using a column packing material selected from strongly basic anion exchange resins and strongly acid cation exchange resins, and

recovering from fractionations (1)~~,~~ and (2) ~~and/or (3)~~ one or more fractions enriched in ~~at least one deoxy sugar~~ fucose.

2. (Currently Amended) A process as claimed in claim 1, characterized by subjecting said solution to two or more of steps (1)~~,~~ and (2) ~~and/or (3)~~.

3. (Currently Amended) A process as claimed in claim 1, characterized by subjecting said solution two or more times to steps selected from steps (1)~~,~~ and (2) ~~and/or (3)~~.

4. (Currently Amended) A process as claimed in claim 1, characterized in that the process further comprises recovering a fraction enriched in rhamnose from one of steps (1) and (2).

5. (Canceled)

6. (Currently Amended) A process as claimed in claim 1, characterized in that the process comprises recovering a fraction enriched in fucose from step (~~3~~2) comprising chromatographic fractionation using a column packing material selected from strongly acid cation exchange resins.

7. (Currently Amended) A process as claimed in claim 1, characterized in that the process comprises recovering a fraction enriched in rhamnose~~,~~ and a fraction enriched in fucose ~~or methyl-*a*-D-xylose~~ in one of steps (1)~~,~~ and (2) ~~or (3)~~.

8. (Currently Amended) A process as claimed in claim 1, characterized in that the process comprises recovering a frction enriched in fucose from step(2) comprising ~~subjecting said solution derived from biomass to~~ chromatographic fractionation using a column packing material selected from strongly basic anion exchange resins ~~and recovering a fraction enriched in fucose~~.

9. (Currently Amended) A process as claimed in claim 1, characterized in that the process comprises the following sequential steps:

(1) subjecting said solution ~~derived from biomass~~ to chromatographic fractionation using a column packing material selected from strongly acid cation exchange resins and recovering a fraction enriched in rhamnose and/or one or more fractions containing ~~deoxy sugars selected from methyl-*a*-D-xylose and~~ fucose,

(2) subjecting said one or more fractions containing ~~methyl-*a*-D-xylose and~~ fucose to chromatographic fractionation using a column packing material selected from weakly acid cation exchange resins and recovering a fraction ~~enriched in methyl-*a*-D-xylose and a fraction~~ containing fucose,

(3) subjecting said fraction containing fucose to chromatographic fractionation using a column packing material selected from strongly basic anion exchange resins and recovering a fraction enriched in fucose.

10. (Original) A process as claimed in claim 1, characterized in that said strongly acid cation exchange resin is in Na^+ form.

11. (Original) A process as claimed in claim 1, characterized in that said strongly acid cation exchange resin is in Zn^{+2} form.

12. (Original) A process as claimed in claim 1, characterized in that said weakly acid cation exchange resin is in Na^+ form.

13. (Original) A process as claimed in claim 1, characterized in that said strongly basic anion exchange resin is in HSO_3^- form.

14. (Currently Amended) A process as claimed in claim 1, characterized in that said solution ~~derived from biomass is a biomass hydrolyzate containing one or more deoxy sugars~~ is a solution of a hydrolyzate of hemicellulose-containing plant-based biomass.

15. (Currently Amended) A process as claimed in claim 14, characterized in that said ~~biomass~~ hydrolyzate ~~containing one or more deoxy sugars~~ of hemicellulose-containing plant-based biomass is a spent liquor obtained from a pulping process.

16. (Original) A process as claimed in claim 15, characterized in that said spent liquor has been obtained from hardwood pulping.

17. (Currently Amended) A process as claimed in claim 14, characterized in that said ~~biomass~~ hydrolyzate ~~containing one or more deoxy sugars~~ of hemicellulose-containing plant-based biomass is selected from a sugar beet-derived solution and a sugar cane-derived solution.

18. (Currently Amended) A process as claimed in claim 1, characterized in that said process further comprises subjecting said one or more fractions enriched in ~~one or more deoxy sugars~~ fucose to crystallization.

19. (Original) A process as claimed in claim 18, characterized in that said crystallization is carried out using evaporation and cooling crystallization.

20. (Canceled)

21. (Currently Amended) A process as claimed in claim ~~20~~ 18, characterized in that fucose is crystallized from a solvent selected from water, an alcohol, ~~preferably ethanol,~~ and a mixture of water and an alcohol~~, preferably a mixture of water and ethanol~~.

22. (Original) A process as claimed in claim 21, characterized in that the crystallization solvent is water.

23. (Currently Amended) A process as claimed in claim ~~20~~ 18, characterized in that the crystallization of fucose is carried out from a solution containing more than 45% fucose on DS.

24. (Original) A process as claimed in claim 23, characterized in that the crystallization of fucose is carried out from a solution containing more than 80% fucose on DS.

25. (Original) A process as claimed in claim 23, characterized in that the crystallization of fucose is carried out from a solution containing less than 20% rhamnose, less than 15% xylose, less than 3% arabinose and less than 1% galactose on DS.

26. (Original) A process as claimed in claim 23, characterized in that the crystallization of fucose is carried out from a solution containing more than 45% fucose, less than 20% rhamnose, less than 15% xylose, less than 3% arabinose and less than 1% galactose on DS.

27. (Currently Amended) A process for the crystallization of fucose, characterized in that the crystallization of fucose is carried out from a ~~biomass-derived~~ solution of a hydrolyzate of

hemicellulose-containing biomass, which contains ~~containing~~ more than 45% fucose, less than 20% rhamnose, less than 15% xylose, less than 3% arabinose and less than 1% galactose.

28. (Original) A process as claimed in claim 26 or 27, characterized in that said crystallization is carried out at a temperature range of 0 to 100°C.

29. (Original) A process as claimed in claim 26 or 27, characterized in that the viscosity of the resulting crystallization mass is in the range of 5 to 500 Pas.

30. (Original) A process as claimed in claim 26 or 27, characterized in that the crystallization is carried out using a mixture of water and ethanol as the solvent.

31. (Original) A process as claimed in claim 26 or 27, characterized in that the crystallization is carried out with a residence time of 0.5 to 10 days.

32. (Currently Amended) A process for the crystallization of fucose, characterized in that the crystallization of fucose is carried out from a ~~biomass-derived~~ solution of a hydrolyzate of hemicellulose-containing biomass, which contains ~~containing~~ more than 80% fucose, less than 20% rhamnose, less than 15% xylose, less than 3% arabinose and less than 1% galactose on DS.

33. (Original) A process as claimed in claim 32, characterized in that the crystallization of fucose is carried out in a temperature range of 0 to 100°C.

34. (Original) A process as claimed in claim 32, characterized in that the crystallization of fucose is carried out with a residence time of 6 to 80 hours.

35. (Original) A process as claimed in claim 18, characterized in that the crystallization of fucose is carried out by fractional crystallization.

36. (Currently Amended) A process as claimed in claim 35, characterized in that the process provides crystalline fucose with a purity of more than 60%~~, preferably more than 90% and most preferably more than 99%~~ on DS.

37. (Original) A process as claimed in claim 18, 27 or 32, characterized in that the process comprises washing the crystals obtained from the crystallization.

38. (Original) A process as claimed in claim 37, characterized in that the washing agent is selected from water, an organic solvent or a mixture thereof.

39. (Original) A process as claimed in claim 1, characterized in that said fucose is L-fucose.

40. (Currently Amended) A process as claimed in claim ~~1~~ 4, characterized in that said rhamnose is L-rhamnose.

41. (Currently Amended) Crystalline L-fucose based on biomass, characterized in that it has a melting point higher than 141°C measured by the European Pharmacopeia method ~~, preferably higher than 142°C and most preferably higher than 142.5°C,~~ and a purity higher than 99% on DS.

42. (Currently Amended) Crystalline L-fucose as claimed in claim 41, characterized in that it has a melting point higher than 145°C.

43. (Canceled)

44. (Canceled)

45. (New) A process as claimed in claim 21, characterized in that said alcohol is ethanol.

46. (New) A process as claimed in claim 35, characterized in that fucose has a purity of more than 90% on DS.

47. (New) A process as claimed in claim 35, characterized in that fucose has a purity of more than 99% on DS.

48. (New) A process for the crystallization of fucose, characterized in that the crystallization of fucose is carried out from a solution of a hydrolyzate of hemicellulose-containing biomass, which contains more than 80% fucose, less than 20% rhamnose, less than 15% xylose, less than

3% arabinose and less than 1% galactose on DS and the crystallization provides crystalline fucose having a purity of more than 99% on DS.

49. (New) Crystalline L-fucose as claimed in claim 42, characterized in that it has a melting point higher than 142°C.

50. (New) Crystalline L-fucose as claimed in claim 42, characterized in that it has a melting point higher than 142.5°C.

51. (New) Crystalline L-fucose as claimed in claim 41, characterized in that it is based on plant biomass.

52. (New) Crystalline L-fucose based on plant biomass, characterized in that it has a melting point higher than 145°C measured by the European Pharmacopeia method and a purity higher than 99% on DS.

53. (New) The crystalline L-fucose as claimed in claim 41, wherein said crystalline L-fucose is utilized in a sweetener application.

54. (New) The crystalline L-fucose as claimed in claim 41, wherein said crystalline L-fucose is utilized in a pharmaceutical application.

55. (New) The crystalline L-fucose as claimed in claim 41, wherein said crystalline L-fucose is utilized for the treatment of disease conditions selected from tumors, inflammatory conditions and disorders relating to the human immune system.

56. (New) The crystalline L-fucose as claimed in claim 41, wherein said crystalline L-fucose is utilized in a cosmetic application.